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EXAMINER

CHORBAJI, MONZER R

ART UNIT PAPER NUMBER

1744

DATE MAILED: 09/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/977,429

Applicant(s)

THINGELSTAD, LARS AKSEL

Examiner

MONZER R. CHORBAJI

Art Unit

1744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

**This final action is in response to the amendment received on 05/22/2006**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 3 and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In amended claim 3, lines 3-4; applicant added the feature "non-reversingly". The disclosure, upon evaluation, was found not to teach such a limitation.

In amended claim 20, lines 7-8; applicant added the feature "all while partially completed container remains open at said opposite ends". The disclosure, upon evaluation, was found not to teach such a limitation.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1, 4, 6-7, 10-11, 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Tuckner et al (U.S.P.N. 5,350,568) in view of Kodera (U.S.P.N. 4,396,582).

Regarding claims 1 and 13, Holbert discloses a method and an apparatus for sterilizing the interior surfaces of a partially completed container (col.1, lines 5-8) by extending an ultraviolet lamp inside the container (figure 6:70, 20 and col.8, lines 45-49). In addition, Holbert teaches that hydrogen peroxide can be applied to the interior surfaces of containers (col.3, lines 28-32). Holbert fails to teach extending a sterilant source inside a container and simultaneously applying a sterilant with ultraviolet radiation to the interior surfaces of the container. Tuckner teaches extending within a partially completed container a device for spraying the interior surfaces of the container with hydrogen peroxide (figures 3(a)-3(c) and col.4, lines 61-67). Tuckner further teaches that ultraviolet irradiation can be applied at a later step (col.10, lines 55-60). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Holbert method and apparatus by adding a hydrogen peroxide sterilization step as taught by Tuckner since the application of ultraviolet

radiation and hydrogen peroxide results in a greater sterilizing effects (Tuckner, col.10, lines 56-58).

Regarding claims 1 and 13, Tuckner fails to teach the simultaneous application of both ultraviolet radiation and hydrogen peroxide to the interior surfaces of a partially completed container. Koderia teaches applying ultraviolet radiation and liquid sterilant simultaneously to the surfaces of a partially completed container (col.1, lines 60-62, col.3, lines 19-21 and col.7, lines 30-41). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Holbert method and apparatus simultaneously applying both ultraviolet light and hydrogen peroxide to the interior surfaces of partially completed containers as taught by Koderia since simultaneous treatment leads to satisfactory sterilization results (Koderia, col.7, lines 39-41).

Regarding claims 4, 11 and 17, Holbert teaches the following: very short distance between the rod-shaped ultraviolet lamp and the interior surface of the partially completed container (figure 3:20, 32 and figure 7:20 and 70) where radiation is emitted from an outer end of the device perpendicularly to a longitudinal axis of the lamp (figure 7:20, 70 and unlabeled arrows where the longitudinal axis of the lamp represents the vertical up and down motion of the lamp), radiation is emitted 360 degrees around the longitudinal axis (unlabeled arrows in figure 7 or 46 in figure 3) and partially completed container is in the form of a folded sleeve closed at one end and open at its other end (figure 7:70).

Regarding claim 6, Holbert teaches that the partially completed container is in the form of a folded sleeve closed at one end and it is open at its other end and further teaches folding and sealing the other end to provide end closure (col.9, lines 14-16). In addition, Holbert discloses extending an ultraviolet lamp inside the container (figure 6:70, 20 and col.8, lines 45-49) where a relative motion occurs between the lamp and the container. Also, Holbert teaches that hydrogen peroxide can be applied to the interior surfaces of containers (col.3, lines 28-32). Holbert fails to teach extending a sterilant source inside a container and simultaneously applying a sterilant with ultraviolet radiation to the interior surfaces of the container. Tuckner teaches extending within a partially completed container a device for spraying the interior surfaces of the container with hydrogen peroxide (figures 3(a)-3(c) and col.4, lines 61-67). Tuckner further teaches that ultraviolet irradiation can be applied at a later step (col.10, lines 55-60). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Holbert method and apparatus by adding a hydrogen peroxide sterilization step as taught by Tuckner since the application of ultraviolet radiation and hydrogen peroxide results in a greater sterilizing effects (Tuckner, col.10, lines 56-58).

Tuckner fails to teach the simultaneous application of both ultraviolet radiation and hydrogen peroxide to the interior surfaces of a partially completed container. Koderia teaches applying ultraviolet radiation and liquid sterilant simultaneously to the surfaces of a partially completed container (col.1, lines 60-62, col.3, lines 19-21 and col.7, lines 30-41). Thus, it would have been obvious to one of ordinary skill in the art at

the time the invention was made to modify Holbert method and apparatus simultaneously applying both ultraviolet light and hydrogen peroxide to the interior surfaces of partially completed containers as taught by Koderer since simultaneous treatment leads to satisfactory sterilization results (Koderer, col.7, lines 39-41).

Regarding claim 7, Holbert teaches a container opened at both opposite ends (col.6, lines 30-31 and figures 2-5) by extending an ultraviolet lamp inside the container (figure 6:70, 20 and col.8, lines 45-49). In addition, the interior surfaces of the partially completed container is irradiated while simultaneously the material passes along the lamp (figure 2:38 and 20) and that hydrogen peroxide can be applied to the interior surfaces of containers (col.3, lines 28-32). Holbert fails to teach extending a sterilant source inside a container and simultaneously applying a sterilant with ultraviolet radiation to the interior surfaces of the container. Tuckner teaches extending within a partially completed container a device for spraying the interior surfaces of the container such that while extending the sprayer within the container (col.9, lines 56-58), applying hydrogen peroxide (figures 3(a)-3(c) and col.4, lines 61-67). Tuckner further teaches that ultraviolet irradiation can be applied at a later step (col.10, lines 55-60). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Holbert method and apparatus by adding a hydrogen peroxide sterilization step as taught by Tuckner since the application of ultraviolet radiation and hydrogen peroxide results in a greater sterilizing effects (col.10, lines 56-58).

Tuckner fails to teach the simultaneous application of both ultraviolet radiation and hydrogen peroxide to the interior surfaces of a partially completed container.

Kodera teaches applying ultraviolet radiation and liquid sterilant simultaneously to the surfaces of a partially completed container (col.1, lines 60-62, col.3, lines 19-21 and col.7, lines 30-41). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Holbert method and apparatus by simultaneously applying both ultraviolet light and hydrogen peroxide to the interior surfaces of partially completed containers as taught by Kodera since simultaneous treatment leads to satisfactory sterilization results (col.7, lines 39-41).

Regarding claim 10, Holbert discloses folding and sealing the other end of the partially completed container to provide end closures (col.9, lines 14-16).

6. Claims 2-3, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Tuckner et al (U.S.P.N. 5,350,568) and Kodera (U.S.P.N. 4,396,582) as applied to claims 1 and 13 and further in view of Swain et al (U.S.P.N. 5,419,058).

Regarding claims 2-3, 14 and 16, Holbert moves the UV lamp non-reversingly toward the interior volume of a container (figure 6:20 and 70). Holbert, Tuckner and Kodera all fail to teach moving the partially completed container with respect to the radiation source or the sterilant source. Swain, which is in the art of treating substrates, teaches the concept of moving the substrate, i.e., moving the substrate upward and downward past the spray nozzle (col.6, lines 13-15). The combination of the above references result in the simultaneous transverse motion to the axis of the partially completed container of both the partially completed container and radiation/sterilant source while emission of radiation (figure 2:38 and 20) and application of hydrogen



Art Unit: 1744

peroxide is performed (col.9, lines 56-58). In addition, Holbert, Tuckner and Swain all have drive arrangement means for moving radiation source (col.8, lines 46-47) or the sterilant source (col.4, lines 65-67) or the substrate (col.6, lines 18-26). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Holbert method and apparatus by including a carton displacement means as taught by Swain in order to insure that the entire carton is treated (col.6, lines 28-31).

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Tuckner et al (U.S.P.N. 5,350,568) and Kodera (U.S.P.N. 4,396,582) as applied to claim 1 and further in view of Leshik et al (U.S.P.N. 4,931,302).

Holbert, Tuckner and Kodera all fail to teach that the container is a cup or beaker and applying a lid to the container. Leshik teaches that such containers have flexible lids (col.4, lines 39-49). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Holbert method by including cup-shaped plastic containers with flexible lids as taught by Leshik since such cups are used in the aseptic filling industry (col.4, lines 39-42).

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Tuckner et al (U.S.P.N. 5,350,568) and Kodera (U.S.P.N. 4,396,582) as applied to claim 7 and further in view of Palaniappan et al (U.S.P.N. 6,056,918).

Holbert, Tuckner and Kodera all fail to explicitly teach moving the container at a constant speed motion. The specification on page 9, lines 1-4, teaches that a uniform

layer of hydrogen peroxide solution is applied as the result of a constant speed motion between the container and the device. Palaniappan teaches forming a uniform coverage layer of hydrogen peroxide (col.8, lines 48-51) on the surfaces of cartons. This result is achieved through a constant speed motion as taught by the specification. Holbert teaches that hydrogen peroxide is applied to the interior surfaces of containers (col.3, lines 28-32). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Holbert method by including a constant speed motion between the sterilant source and the partially completed since such a modification leads to an improvement in the sterilization capability of the system as taught by Palaniappan (col.8, lines 52-54).

9. Claims 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Tuckner et al (U.S.P.N. 5,350,568) and Koderia (U.S.P.N. 4,396,582) as applied to claims 7 and 13 and further in view of Rodocker (U.S.P.N. 4,590,740).

Regarding claims 9 and 15, Holbert discloses a mandrel (figure 7:20) that extends into the top open end of the partially completed container (figure 7:70) by driving arrangement means. The top of the sterilized container is sealed at a closing arrangement disposed at a location along a transverse movement of the mandrel (figure 7:70 and the unlabeled subsequent filling and closing steps) after sterilization is achieved. Further, Holbert teaches forming containers from packaging material (col.6, lines 26-40) that result in a tubular container opened at both ends. Mandrel is conventionally defined as cylindrical axle inserted into a hole in a piece of work to

support it during treatment. The mandrel (figure 7:20) of Holbert is capable of supporting the partially completed container by being inserted within it. Holbert, Tuckner and Koderer all fail to teach that while the container remains on the mandrel, the container other end is closed. Rodocker teaches a partially completed container open at both ends (figure 1:40) and subsequently closing the other end of the container (figure 1:B or C or D) while the container is remaining on the mandrel. Also, Rodocker teaches a mandrel that supports the partially completed container (figure 1:steps B or C or D). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Holbert method by including a mandrel assembly as taught by Rodocker since such an assembly provides an improved means by sterilizing the interior surfaces of carton blanks prior to bottom formation step thereby substantially increasing the sterilizing time allotted to each carton (Rodocker, col.4, lines 10-16).

10. Claims 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Tuckner et al (U.S.P.N. 5,350,568) and Koderer (U.S.P.N. 4,396,582) as applied to claims 11 and 17 and further in view of Palaniappan et al (U.S.P.N. 6,120,730).

Regarding claims 12 and 18, Tuckner teaches emitting hydrogen peroxide from the outer end of the device at 360 degrees around the axis of the container (figure 2:28 and the unlabeled hydrogen peroxide dispensing lines). Holbert Tuckner and Koderer all fail to teach emitting a sterilant perpendicular to the axis of the container. Palaniappan teaches emitting hydrogen peroxide substantially perpendicular to the axis of the

container (figure 5:63 and 260). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Holbert method by substituting Holbert sprayer for Palaniappan sprayer in order to be able to widely disperse the sterilant within the container as taught by Palaniappan (col.6, lines 62-64).

11. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Tuckner et al (U.S.P.N. 5,350,568) and Kodera (U.S.P.N. 4,396,582) as applied to claim 17 and further in view of Leshik et al (U.S.P.N. 4,931,302).

Holbert discloses a mandrel (figure 6:20) that extends into the top open end of the partially completed container (figure 7:70) by driving arrangement means. The top of the sterilized container is sealed at a closing arrangement disposed at a location along a transverse movement of the mandrel (figure 7:70 and the unlabeled subsequent filling and closing steps) after sterilization is achieved. Further, Holbert teaches forming containers from packaging material (col.6, lines 26-40) that result in a tubular container opened at both ends. Mandrel is conventionally defined as cylindrical axle inserted into a hole in a piece of work to support it during treatment. The mandrel (figure 7:20) of Holbert is capable of supporting the partially completed container by being inserted within it. Holbert, Tuckner and Kodera all fail to teach positioning a mandrel cap at an outer end of the rod-shaped source and bottom sealing the partially completed container. Leshik teaches that such containers have flexible lids (col.4, lines 39-49). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Holbert apparatus by including cup-shaped plastic

containers with a sealing lids as taught by Leshik since such cups are used in the aseptic filling industry (col.4, lines 39-42).

**12.** Claims 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuckner et al (U.S.P.N. 5,350,568) in view of Rodocker (U.S.P.N. 4,590,740).

Regarding claim 20, Tuckner teaches sterilizing a partially completed container by inserting while spraying hydrogen peroxide through one of the open ends of the container a mandrel (figure 3(a): 62 and 34) that includes a sprayer for spraying the interior surfaces of the container (figure 3(a) through 3(c)) such that the container is open at opposite ends (col.4, lines 13-19) and a drive arrangement (col.5, lines 30-34) for making the mandrel to extend into the container from one of the open ends (figure 3(c)). Tuckner fails to teach sterilizing the interior walls of the container while the partially completed container remains open at opposite ends. Rodocker teaches sterilizing interior walls of container with opposite ends open (figure 1:12 and 44). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Tuckner method by sterilizing the interior of container while both of its opposite ends are open as taught by Rodocker in order to insure that all the interior surfaces of the container received proper amount of the sterilant (Rodocker, col.3, lines 60-66).

Regarding claim 22, Tuckner inserts a mandrel (figure 3(a): 32 and 62) in the one opening of the partially completed container. Tuckner further teaches the cartons are formed from blanks with two open ends (col.4, lines 14-17). Mandrel is conventionally defined as cylindrical axle inserted into a hole in a piece of work to support it during

treatment. The mandrel (figure 3(a): 32 and 62) of Tuckner is capable of supporting the partially completed container by being inserted within it. Tuckner fails to teach closing the other end of the container while it remains on the mandrel. Rodocker teaches sealing the other end while the container remains on the mandrel (figure 1:24, 26 and col.2, lines 36-39). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Tuckner method by including a mandrel assembly as taught by Rodocker since such an assembly provides an improved means by sterilizing the interior surfaces of carton blanks prior to bottom formation step thereby substantially increasing the sterilizing time allotted to each carton (Rodocker, col.4, lines 10-16).

**13.** Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuckner et al (U.S.P.N. 5,350,568) in view of Rodocker (U.S.P.N. 4,590,740) as applied to claim 20 and further in view of Palaniappan et al (U.S.P.N. 6,056,918).

Regarding claim 21, Tuckner teaches continuously applying hydrogen peroxide to containers (col.9, lines 56-58). Both Tuckner and Rodocker fail to explicitly teach moving the container at a constant speed. The specification on page 9, lines 1-4, teaches that a uniform layer of hydrogen peroxide solution is applied as the result of a constant speed motion between the container and the device. Palaniappan teaches forming a uniform coverage layer of hydrogen peroxide (col.8, lines 48-51) on the surfaces of cartons. This result is achieved through a constant speed motion as taught by the specification. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Tuckner method by including a

constant speed motion between the sterilant source and the partially completed container since such a modification leads to an improvement in the sterilization capability of the system as taught by Palaniappan (col.8, lines 52-54).

**14.** Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuckner et al (U.S.P.N. 5,350,568) in view of Rodocker (U.S.P.N. 4,590,740) as applied to claim 20 and further in view of Swain et al (U.S.P.N. 5,419,058).

Tuckner teaches moving the spraying device within the container and continuously apply hydrogen peroxide to containers (col.9, lines 56-58). Tuckner and Rodocker fail to teach simultaneously advancing the container and the device. Swain teaches the concept of moving the substrate, i.e., moving the substrate upward and downward past the spray nozzle (col.6, lines 13-15). The combination of the above references result in the simultaneous transverse motion to the axis of the partially completed container. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Tuckner method by including a carton displacement means as taught by Swain in order to insure that the entire carton is treated (col.6, lines 28-31).

**15.** Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuckner et al (U.S.P.N. 5,350,568) in view of Rodocker (U.S.P.N. 4,590,740) as applied to claim 20 and further in view of Palaniappan et al (U.S.P.N. 6,120,730).

Tuckner teaches emitting hydrogen peroxide from the outer end of the device at 360 degrees around the axis of the container (figure 2:28 and the unlabeled hydrogen peroxide dispensing lines). Tuckner and Rodocker both fail to teach emitting a sterilant

perpendicular to the axis of the container. Palaniappan teaches emitting hydrogen peroxide substantially perpendicular to the axis of the container (figure 5:63 and 260). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Holbert method by substituting Holbert sprayer for Palaniappan sprayer in order to be able to widely disperse the sterilant within the container as taught by Palaniappan (col.6, lines 62-64).

16. Claims 23-24, 33-35 and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Swain et al (U.S.P.N. 5,419,058).

Regarding claims 23-24, Holbert teaches inserting UV lamp into a partially completed container, but fails to teach moving the partially completed container with respect to the radiation source. Swain teaches the concept of moving the substrate, i.e., moving the substrate upward and downward past the spray nozzle (col.6, lines 13-15) with a drive mechanism for displacing the container (col.6, lines 18-25). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Holbert method and apparatus by including a carton displacement means as taught by Swain in order to insure that the entire carton is treated (col.6, lines 28-31).

Regarding claims 33 and 39, Holbert teaches a very short distance between the rod-shaped ultraviolet lamp and the interior surface of the partially completed container (figure 3:20, 32 and figure 7:20 and 70) where radiation is emitted from an outer end of the device perpendicularly to a longitudinal axis of the lamp (figure 7:20, 70 and



unlabeled arrows where the longitudinal axis of the lamp represents the vertical up and down motion of the lamp) throughout 360 degrees.

Regarding claims 34-35, Holbert teaches that the container is a partially completed container in the form of a folded sleeve open at both ends (col.6, lines 26-42) such that while displacing is being performed, emitting is being performed and displacing is at constant speed while emitting is being performed (the specification on page 8, numbered lines 25-27 and page 9, numbered lines 1-3 teaches that constant speed would results in a uniform sterilization, which the Holbert reference teaches in col.3, lines 8-9. Obviously, the Holbert reference is intrinsically moving the device at a constant speed). Holbert fails to teach moving the partially completed container with respect to the radiation source. Swain teaches the concept of moving the substrate, i.e., moving the substrate upward and downward past the spray nozzle (col.6, lines 13-15) with a drive mechanism for displacing the container (col.6, lines 18-25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Holbert method by including a carton displacement means as taught by Swain in order to insure that the entire carton is treated (col.6, lines 28-31).

Regarding claim 37, Holbert teaches inserting UV lamp into a partially completed container. Further, Holbert teaches forming containers from packaging material (col.6, lines 26-40) that result in a tubular container opened at both ends and a closing arrangement disposed at a location along a path of transverse movement of the mandrel (figure 6:70 and the unlabeled closing means in a transverse relation to the mandrel. Holbert fails to teach moving the partially completed container with respect to

the radiation source. Swain teaches the concept of moving the substrate, i.e., moving the substrate upward and downward past the spray nozzle (col.6, lines 13-15) with a drive mechanism for displacing the container (col.6, lines 18-25). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Holbert method and apparatus by including a carton displacement means as taught by Swain in order to insure that the entire carton is treated (col.6, lines 28-31).

Regarding claim 38, Holbert teaches inserting UV lamp into a partially completed container, but fails to teach moving the partially completed container with respect to the radiation source. Swain teaches the concept of moving the substrate, i.e., moving the substrate upward and downward past the spray nozzle (col.6, lines 13-15) with a drive mechanism for displacing the container (col.6, lines 18-25). The combination of the above references result in a mechanism to advance both the container and the UV lamp simultaneously. Also, the combination of the above references result in the simultaneous transverse motion to the axis of the partially completed container while emission of radiation (figure 2:38 and 20) is performed. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Holbert method and apparatus by including a carton displacement means as taught by Swain in order to insure that the entire carton is treated (col.6, lines 28-31).

17. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Swain et al (U.S.P.N. 5,419,058) as applied to claim 34 and further in view of Rodocker (U.S.P.N. 4,590,740).

Regarding claim 36, Holbert discloses a mandrel (figure 6:20) that extends into the top open end of the partially completed container (figure 7:70) by driving arrangement means. Further, Holbert teaches forming containers from packaging material (col.6, lines 26-40) that result in a tubular container opened at both ends. Holbert and Swain both fail to teach closing the other end of the container while it remains on the mandrel. Rodocker teaches sealing the other end while the container remains on the mandrel (figure 1:24, 26 and col.2, lines 36-39). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Holbert method by including a mandrel assembly as taught by Rodocker since such an assembly provides an improved means by sterilizing the interior surfaces of carton blanks prior to bottom formation step thereby substantially increasing the sterilizing time allotted to each carton (col.4, lines 10-16).

18. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Swain et al (U.S.P.N. 5,419,058) as applied to claim 39 and further in view of Leshik et al (U.S.P.N. 4,931,302).

Holbert discloses a mandrel (figure 6:20) that extends into the top open end of the partially completed container (figure 7:70) by driving arrangement means. The top of the sterilized container is sealed at a closing arrangement disposed at a location along a transverse movement of the mandrel (figure 7:70 and the unlabeled subsequent filling and closing steps) after sterilization is achieved. Holbert and Swain both fail to teach positioning a mandrel cap at an outer end of the rod-shaped source to enable bottom sealing the partially completed container. Leshik teaches that such containers have

Art Unit: 1744

flexible lids (col.4, lines 39-49). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Holbert apparatus by including cup-shaped plastic containers with a sealing lids as taught by Leshik since such cups are used in the aseptic filling industry (col.4, lines 39-42).

19. Claims 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuckner et al (U.S.P.N. 5,350,568) in view of Rodocker (U.S.P.N. 4,590,740).

Regarding claims 25-26, Tuckner inserts a mandrel (figure 3(a): 32 and 62) in the one opening of the partially completed container by using a drive arrangement (col.5, lines 30-34) and also discloses a subsequent closing arrangement after the sterilization step (col.4, lines 37-41) at a location along a path transverse to the movement of the mandrel for closing the opening of the container. Tuckner further teaches the cartons are formed from blanks with two open ends (col.4, lines 14-17). Mandrel is conventionally defined as cylindrical axle inserted into a hole in a piece of work to support it during treatment. The mandrel (figure 3(a): 32 and 62) of Tuckner is capable of supporting the partially completed container by being inserted within it. Tuckner fails to teach closing the other end of the container while it remains on the mandrel.

Rodocker teaches sealing the other end while the container remains on the mandrel (figure 1:24, 26 and col.2, lines 36-39). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Tuckner method and the apparatus by including a mandrel assembly as taught by Rodocker since such an assembly provides an improved means by sterilizing the interior surfaces

Art Unit: 1744

of carton blanks prior to bottom formation step thereby substantially increasing the sterilizing time allotted to each carton (col.4, lines 10-16).

20. Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holbert (U.S.P.N. 5,730,934) in view of Rodocker (U.S.P.N. 4,590,740).

Regarding claims 27-28, Holbert discloses a mandrel (figure 6:20) that extends into the top open end of the partially completed container (figure 7:70) by driving arrangement means and a subsequent closing means (col.4, lines 35-37). Further, Holbert teaches forming containers from packaging material (col.6, lines 26-40) that result in a tubular container opened at both ends. Holbert fails to teach closing the other end of the container while it remains on the mandrel. Rodocker teaches sealing the other end while the container remains on the mandrel (figure 1:24, 26 and col.2, lines 36-39). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Holbert method and apparatus by including a mandrel assembly as taught by Rodocker since such an assembly provides an improved means by sterilizing the interior surfaces of carton blanks prior to bottom formation step thereby substantially increasing the sterilizing time allotted to each carton (col.4, lines 10-16).

21. Claims 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuckner et al (U.S.P.N. 5,350,568) in view of Swain et al (U.S.P.N. 5,419,058).

Regarding claims 29-30, Tuckner teaches moving the spraying device within the container from an open end and continuously apply hydrogen peroxide to containers (col.9, lines 56-58). Tuckner further teaches a first drive arrangement for causing the

Art Unit: 1744

spraying device to move within a container (col.5, lines 30-35), but fails to teach simultaneously advancing the container and the device. Swain teaches the concept of moving the substrate, i.e., moving the substrate upward and downward past the spray nozzle (col.6, lines 13-15). The combination of the above references result in the simultaneous transverse motion to the axis of the partially completed container and a second drive arrangement for moving the device and the container simultaneously. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Tuckner method and apparatus including a carton displacement means as taught by Swain in order to insure that the entire carton is treated (col.6, lines 28-31).

**22.** Claims 41-43 and 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuckner et al (U.S.P.N. 5,350,568) in view of Rodocker (U.S.P.N. 4,590,740) as applied to claims 25-26 and further in view of Swain et al (U.S.P.N. 5,419,058).

Regarding claims 41-43 and 46-47, Tuckner teaches moving the spraying device within the container and continuously apply hydrogen peroxide to containers (col.9, lines 56-58). In addition, Tuckner teaches a drive arrangement for causing the spraying device to move within a container (col.5, lines 30-35). Both Tuckner and Rodocker fail to teach simultaneously advancing the container and the device. Swain teaches the concept of moving the substrate, i.e., moving the substrate upward and downward past the spray nozzle (col.6, lines 13-15). The combination of the above references result in the simultaneous transverse motion to the axis of the partially completed container and

Art Unit: 1744

a second drive arrangement for moving the device and the container simultaneously.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Tuckner method by including a carton displacement means as taught by Swain in order to insure that the entire carton is treated (col.6, lines 28-31).

**23.** Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuckner et al (U.S.P.N. 5,350,568) in view of Rodocker (U.S.P.N. 4,590,740), Swain et al (U.S.P.N. 5,419,058) as applied to claim 43 and further in view of Palaniappan et al (U.S.P.N. 6,056,918).

Tuckner teaches continuously applying hydrogen peroxide to containers (col.9, lines 56-58). Tuckner fails to explicitly teach moving the container at a constant speed. Rodocker and Swain also both fail to teach moving the container at a constant speed. The specification on page 9, lines 1-4, teaches that a uniform layer of hydrogen peroxide solution is applied as the result of a constant speed motion between the container and the device. Palaniappan teaches forming a uniform coverage layer of hydrogen peroxide (col.8, lines 48-51) on the surfaces of cartons. This result is achieved through a constant speed motion as taught by the specification. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Tuckner method by including a constant speed motion between the sterilant source and the partially completed container since such a modification leads to an improvement in the sterilization capability of the system as taught by Palaniappan (col.8, lines 52-54).

24. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuckner et al (U.S.P.N. 5,350,568) in view of Rodocker (U.S.P.N. 4,590,740) as applied to claim 25 and further in view of Palaniappan et al (U.S.P.N. 6,120,730).

Tuckner teaches emitting hydrogen peroxide from the outer end of the device at 360 degrees around the axis of the container (figure 2:28 and the unlabeled hydrogen peroxide dispensing lines). Tuckner and Rodocker both fail to teach emitting a sterilant perpendicular to the axis of the container. Palaniappan teaches emitting hydrogen peroxide substantially perpendicular to the axis of the container (figure 5:63 and 260). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Tuckner method by substituting Holbert sprayer for Palaniappan sprayer in order to be able to widely disperse the sterilant within the container as taught by Palaniappan (col.6, lines 62-64).

#### ***Response to Arguments***

25. Applicant's arguments filed on 05/22/2006 have been fully considered but they are not persuasive.

On page 1 of the Remarks section, applicant argues that, "Thus, Holbert clearly leads the skilled person away from the simultaneous emitting and applying steps of claim 1". The examiner disagrees with this conclusion since Holbert evaluated by itself teaches applying a sterilant then irradiating with UV light. One of ordinary skill in the art reading Holbert only would apply a sterilant to containers then irradiate them with UV light and would not reject Kodera teachings of the advantages obtained upon the simultaneous application of sterilant and UV light (col.1, lines 60-62, col.3, lines 19-21



and col.7, lines 30-41) since such a treatment leads to satisfactory sterilization results (Kodera, col.7, lines 39-41). Applicant is reminded that proper evaluation of obviousness rejections is by addressing motivations of references not addressing them individually. Clearly, the combination of Holbert, Tuckner and Kodera leads one of ordinary skill in the art at the time the invention was made to the simultaneous application of hydrogen peroxide and UV light while moving the applicator within the container.

On page 2 of the Remarks section, applicant argues that, "Kodera et al. teach that in order to derive the full benefits from the sterilizing agents, and to cancel their drawbacks, the subject should first be immersed in or otherwise treated with the sterilizing liquid and then exposed to ultraviolet radiation." The examiner notes in evaluating Kodera that it teaches multiple embodiments of sterilizing containers and one of the embodiment is the simultaneous application of both liquid hydrogen peroxide and UV light. Kodera further provides in col.7, lines 40-41 the benefit of such an embodiment.

On bottom of page 2 into top of page 3 of the Remarks section, applicant argues that Swain reference is nonanalogous art as having different international and US classification codes different from the other references. The examiner disagrees since Swain just like the instant claims is in the art of manipulating substrates by cleaning them simultaneously with liquid detergents and UV light (col.5, lines 32-36) using mandrel as a container support system. Clearly, both the instant claims and Swain are trying to achieve the same goal, which is the simultaneous application of UV and liquid

cleaner to substrates regardless of whether references have the same or different classification codes.

On page 3 of the Remarks section, applicant argues that, "Thus, there does not appear to be any disclosure in Swain et al. that the nozzle and the substrate should move transversely, e.g., horizontally to that direction of relative vertical movement simultaneously with the applying of the spray to the substrate." The examiner disagrees. The instant claims do not recite vertical or horizontal movement directions. Swain is combined to show moving substrates toward and away from treatment source is known. Swain substrate moves across its axis as being in up and down directions. Furthermore, movement of sterilant and UV applicators is shown in Holbert and Tuckner while simultaneous application of both sterilant and UV light is taught in Kodera such that the combination of references meet the features recited in claims 2-3, 14 and 16.

On bottom of page 3 through page 4 of the Remarks section, applicant argues that, "It is the examiner who has introduced the references to there being a layer of hydrogen peroxide on the surfaces of cartons, but the passage to which he refers does not lend any support to what he alleges that the reference teaches." The examiner disagrees. Palaniappan forms a uniform layer on interior surfaces of containers since the reference uses hydrogen peroxide in vapor phase (col.1, lines 19-21) and teaches the benefit of doing so in column 8, lines 48-51.

On page 4 of the Remarks section, applicant argues that, "Applicant is unable to find any support whatsoever for that assertion in Palaniappan et al. and therefore respectfully requests that the examiner identify where the teaching is to be found in the

Art Unit: 1744

specification.” The examiner refers Applicant to page 8 of action dated 11/18/2005 that is shown again as follows: Holbert, Tuckner and Koderer all fail to explicitly teach moving the container at a constant speed motion. The specification on page 9, lines 1-4, teaches that a uniform layer of hydrogen peroxide solution is applied as the result of a constant speed motion between the container and the device. Meaning that motion with constant speed results in establishing uniform layer of hydrogen peroxide on interior surfaces of containers. Now, Palaniappan teaches forming a uniform coverage layer of hydrogen peroxide (col.8, lines 48-51) on the surfaces of cartons. As a result, based on the teachings of the specification, Palaniappan necessarily moves containers at constant speed. Note that the instant claims do not require liquid or vapor state of hydrogen peroxide. In addition, the hydrogen peroxide solution mentioned on page 9, lines 1-4 of the specification is actually atomized (in vapor form) before being applied as explained on page 9, numbered lines 22-24 or page 12, numbered lines 20-25 of the specification.

On bottom of page 4 and top of page 5 of the Remarks section, applicant argues that Holbert lamp is not a mandrel and that this lamp is not capable of supporting the containers. The examiner disagrees. Holbert lamp (figure 7:20) is a mandrel that is capable of being inserted within container 70 of figure 6 for supporting it. Just like the mandrel definition provided by applicant and the mandrel definition cited by examiner on page 9 of action dated 11/18/2005, Holbert lamp is a mandrel that is inserted into the interior (hole) of container 70 of figure 6. In addition, Rodocker teaches using mandrel to support cartons.

On bottom of page 5 of the Remarks section, applicant argues that, "Applicant respectfully submits that Figure 2 does not in any way teach emitting hydrogen peroxide from the outer end of the device at 360° around the axis of the container as asserted by the examiner." The examiner disagrees and again refers Applicant to page 10 of action dated 11/18/2005 where in figure 2 of Tuckner there are unlabeled hydrogen peroxide dispersing lines that are 360° around the axis of the container.

On page 6 of the Remarks section, applicant argues that, "Thus, it would appear that the nozzles 63 and 64 are used to produce a cloud of gaseous hydrogen peroxide and there is no disclosure that the nozzles emit the vapor substantially perpendicularly to the axis of the container." The examiner disagrees and again refers Applicant to page 10 of action dated 11/18/2005 where unlabeled nozzle openings emit hydrogen peroxide substantially perpendicular to the axis of the container as shown in figure 5 of Palaniappan. Note that the instant claims do not require liquid or vapor state of hydrogen peroxide. In addition, the hydrogen peroxide solution mentioned on page 9, lines 1-4 of the specification is actually atomized (in vapor form) before being applied as explained on page 9, numbered lines 22-24 or page 12, numbered lines 20-25 of the specification.

On page 6 of the Remarks section, applicant argues that, "Thus, a person of ordinary skill in the art would dismiss Leshik as not being relevant." The examiner make a note that claim 19 is an apparatus claim such that Leshik cap is capable of being a mandrel cap and it enables the sealing of the partially completed container as taught by Leshik in column 4, lines 39-49. Just like the instant claims, Leshik is concerned with

applying hydrogen peroxide or UV light for sterilizing containers and then sealing them aseptically. Clearly, Leshik is analogous art.

On bottom of page 7 through page 8 of the Remarks section, applicant argues that, "Applicant respectfully submits that the examiner may have become confused in relation to what is disclosed in Holbert." The examiner disagrees since Holbert in figure 2 and column 6, lines 26-50 teaches vertical form, fill and seal machine that continuously moves material 32 thereby forming tubular material open at both ends then emits UV light. Then, transverse sealer 40 seals the material transversally prior to filling. All the above-recited steps occur during motion of material within the machine 30 as shown in figure 2 of Holbert.

### ***Conclusion***

**26.** Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

**27.** A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 1744


the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONZER R. CHORBAJI whose telephone number is (571) 272-1271. The examiner can normally be reached on M-F 9:00-5:30.

29. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, GLADYS J. CORCORAN can be reached on (571) 272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

30. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MRC



GLADYS JP CORCORAN  
SUPERVISORY PATENT EXAMINER